



## PESTICIDE FACT SHEET

Name of Pesticide Product: Neu 1165M Slug and  
Snail Bait

Name of Chemical: Iron (Ferric) Phosphate

Reason for Issuance: Registration

Date Issued: August 14, 1997

Fact Sheet Number:

### 1. DESCRIPTION OF THE CHEMICAL

Generic Name(s) of the  
Active Ingredient(s):

Iron (ferric) orthophosphate, iron  
(ferric) phosphate ( $\text{FePO}_4 \cdot 2\text{H}_2\text{O}$ )

OPP Chemical Codes

34903

Year of Initial Registration:

1997

Pesticide Type:

Biochemical molluscicide

U.S. and Foreign Producers:

W. Neudorff GmbH KG  
An der Muhle 3  
D-31860 Emmerthal, Germany

### 2. USE SITES, APPLICATION TIMING & TARGET PESTS

Iron phosphate is to be used as the pesticidal active ingredient in a slug and snail bait formulation, on terrestrial, non-commercial food crops (vegetables, berries, fruit trees including citrus), domestic outdoor ornamental, domestic lawn and garden use, and non-commercial greenhouses.

The bait granules, which are noodle-like in appearance, are scattered on the soil around or near the plants to be protected. The soil to be treated should be moist, but with little or no standing water, and evening is the best time of day to apply, as slugs and snails travel and feed mostly by night or early morning. For terrestrial, non-commercial food crops, domestic outdoor ornamental, lawn and garden use, the bait should be evenly applied at a rate of 1 lb. per 1,000 square feet (0.15 oz., or about 1 level teaspoon per square yard). For non-commercial greenhouse use, the slug and snail bait granules should be applied at a rate of  $\frac{1}{2}$  teaspoon per 9 inch. The bait should be reapplied as it is consumed or at least every two weeks, or when the area is heavily watered or after periods of heavy rain.

### 3. SCIENCE FINDINGS

**A. TOXICOLOGY:** All toxicity data requirements have been satisfied for the purpose of the registration. The information submitted to support the acute toxicity requirements for iron phosphate indicate toxicity category IV for acute oral toxicity, category IV for acute dermal toxicity, category III for primary eye irritation, and category IV for primary dermal irritation. Acute inhalation, dermal sensitization, genotoxicity, immunotoxicity, developmental toxicity and subchronic (90 day) oral toxicity studies were waived because of iron phosphates' FDA GRAS (generally regarded as safe) status, the abundance of iron in nature, its low toxicity, its use as a nutritional supplement, and its low water-solubility, which would decrease its absorption across the intestinal epithelium.

#### **B. HUMAN HEALTH EFFECTS:**

No unreasonable adverse effects to human health are expected from the use of iron phosphate.

##### 1. Risks Posed by Potential Dietary Exposure

The proposed use pattern for NEU 1165M Slug and Snail Bait will result in dietary exposure with possible residues on food grown in the home garden setting. However, in the absence of any toxicological endpoints, risk from the consumption of treated commodities is not expected for both the general population and infants and children. Acute exposure could occur from the proposed outdoor use sites, but would be very low because of the low applications rates. The application rate is 1 lb. per 1,000 square feet, with no maximum number of applications. No residue data were required since the use is for terrestrial, non-commercial food crops (vegetables, berries, fruit trees, including citrus), domestic outdoor ornamentals, lawns, gardens, and non-commercial greenhouses.

##### 2. Effects on Immune and Endocrine Systems

The Agency is not requiring information on the endocrine effects of this biochemical pesticide at this time; Congress has allowed three years after August 3, 1996, for the Agency to implement a screening program with respect to endocrine effects. However, BPPD has considered, among other relevant factors, available information concerning whether iron phosphate may have an effect in humans similar to an effect produced by a naturally occurring estrogen or other endocrine effects. There is no known metabolite of iron phosphate that acts as an "endocrine disrupter" or an immunotoxicant. Therefore, no adverse effects to the endocrine or immune

systems are known or expected.

### 3. Risks Posed by Potential Residential, School or Daycare Exposure

No indoor residential, school or daycare uses currently appear on the label. The use sites are terrestrial, non-commercial food crops (vegetables, berries, fruit trees, including citrus), domestic outdoor ornamentals, lawns, gardens, and non-commercial greenhouses. Nondietary exposure to these sites could occur where children are present, but the health risk is expected to be minimal to nonexistent based on evaluations of the submitted studies and the low toxicity of iron salts.

### 4. Potential for the Transfer of the Pesticide to Drinking Water

Although the potential exists for a minimal amount of iron phosphate to enter ground water or other drinking water sources, phosphate has an extremely low solubility in water. Thus, the amount would, in all probability, be undetectable or more than several orders of magnitude lower than those levels considered necessary for safety. Both percolation through soil and municipal treatment of drinking water would reduce the possibility of exposure to iron phosphate through

drinking water. Therefore, the potential of significant transfer to drinking water is minimal to nonexistent.

### 5. Acute and Chronic Dietary Risks for Sensitive Subpopulations, Particularly Infants and Children

A battery of acute toxicity/pathogenicity studies is considered sufficient by the Agency to perform a risk assessment for biochemical pesticides.

In considering health risk from iron phosphate, it is important to keep the ubiquitous nature of this mineral in mind. Despite decades of widespread use of iron as a nutritional supplement, there have been no confirmed reports of immediate or delayed allergic reactions with significant oral exposure.

### 6. Cumulative Exposure From Multiple Routes Including Dermal, Inhalation, and Oral

Oral exposure would only occur if the product itself is eaten. Since the acute oral toxicity study demonstrated no adverse effects, it is the Agency's opinion that exposure by the oral route should not pose a significant threat to human health.

Since the acute dermal toxicity and acute dermal irritation study demonstrated no adverse effects, it is the Agency's opinion that exposure to the skin should not pose a risk to health.

Exposure by the inhalation route would be nonexistent, due to the formulation of the substance, being of a noodle-like consistency. In addition, iron phosphate is not volatile. In summary, the potential aggregate exposure, derived from oral, dermal and inhalation exposure should be minimal.

## **C. ECOLOGICAL EFFECTS:**

### **1. Ecological Effects Hazard Assessment**

A number of ecological effects toxicology data requirements were waived based on the known lack of toxicity of iron phosphate to birds, fish and non-target insects, its low solubility in water, conversion to less soluble form in the environment (soil), and its use pattern (soil application). An acute oral toxicity study in Bobwhite quail (NOEL & LD50 greater than 2000 mg/kg) indicated that iron phosphate was practically nontoxic to avian species. Based on these factors, the data requirements for the toxicity studies in Mallard duck, rainbow trout, freshwater invertebrates, and nontarget insect/honeybees are waived. It is likely that there will be exposure to ground-feeding nontarget insects and earthworms. Submitted studies involving ground beetles, rove beetles and earthworms demonstrated that the product will not affect these organisms at up to two times the maximum application rate.

### **2. Environmental Fate and Ground Water Data**

Exposure assessments on this type of product (biochemical pesticide) are not performed unless human health or ecological effects issues arise in the toxicity studies for either of these disciplines (40 CFR §158.740(d)(2)(vi)). Since no endpoints of concern were identified, there is no requirement for environmental fate data.

### **3. Ecological Exposure and Risk Characterization**

Exposure to daphnids and other aquatic invertebrates would not occur based on current label use directions. Exposure to honeybees is also not expected to occur, due to the composition of the end-use product (noodle-like material) and its use pattern (soil application). Nontarget insects, such as ground beetles and earthworms, could encounter the end-use product; however, in tests of rove beetles, ground beetles and earthworms, no effects were observed at up to twice the

maximum application rate. Thus, the acute risk to aquatic invertebrates, nontarget insects, and earthworms is considered minimal to nonexistent.

**4. DATA GAPS**

There are no data gaps for this pesticide registration.

**5. Regulatory Actions**

**A. Unconditional Registration**

All data requirements are fulfilled and the Biopesticides and Pollution Prevention Division recommends unconditional registration of NEU 1165M Slug and Snail Bait, containing the new pesticidal active ingredient, iron (ferric) phosphate.

**B. Tolerance**

There is no tolerance or exemption from tolerance for the active ingredient, iron phosphate. A tolerance or exemption from tolerance is not applicable, due to the domestic, non-commercial uses of this product.

**7. CONTACT PERSON AT EPA**

**OFFICE LOCATION/TELEPHONE NUMBER**

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- 8. DISCLAIMER:** The information in this Pesticide Fact Sheet is a summary only and is not to be used to satisfy data requirements for pesticide registration and reregistration. Contact the Regulatory Action Leader listed above for further information.